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LETTER

Thiamine in diabetic nephropathy: a novel treatment modality?

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Keywords Diabetic nephropathy · Microalbuminuria · Thiamine · Type 2 diabetes

Abbreviations
RAAS Renin–angiotensin–aldosterone system
UAE Urinary albumin excretion

To the Editor: We read with great interest the article by Rabbani et al. [1], in which the authors present the results of the first randomised double-blind placebo-controlled trial of high-dose thiamine for the treatment of microalbuminuria in patients with type 2 diabetes. Rabbani et al. concluded that treatment with thiamine for 3 months resulted in regression of albuminuria. This is a very important finding, possibly leading to the further conclusion that high-dose thiamine should be considered as a novel treatment modality for diabetic nephropathy.

However, there are several issues in the current study that cause concern. According to the data presented in Table 1 of the paper, urinary albumin excretion (UAE) in the intervention group decreased from a median of 43.7 mg/24 h at baseline to 30.1 mg/24 h after 3 months of treatment (a difference of –13.6 mg/24 h). In the placebo group, the corresponding values were 50.9 mg/24 h and 35.5 mg/24 h (a difference of –15.4 mg/24 h). Changes in UAE are also presented in Fig. 1a, with values of about –17 mg/24 h for the intervention group and about –5 mg/24 h for the placebo group. Since both outcomes represent the same data, some clarification would be appropriate. The further decrease in UAE during the washout period in both groups causes additional concern, as it suggests that factors other than thiamine may have contributed to the decrease in UAE.

The authors conclude that thiamine is superior to placebo because of the difference between the median values of UAE after 3 months of therapy. However, in order to validate this conclusion, some further questions need to be addressed. Although there was no significant difference between the two groups in median UAE at baseline, this does not necessarily mean that there was no impact on the results [2]. In studies with small sample sizes, imbalances between the two groups can easily occur despite randomisation. It would also be relevant to know whether there were any differences in the use of angiotensin-converting enzyme inhibitors and angiotensin receptor blockers between the groups and, if they were used, when the treatments were started. It should be noted that the effects of these drugs on UAE may take a long time to become detectable.

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Furthermore, the authors mention linear regression of UAE in relation to treatment time. From the information presented in the article, we cannot discern, however, whether the presented rates of decrease in UAE over time are mean regression coefficients, and in what time unit they are expressed and whether they differed significantly between the groups.

Finally, it should be pointed out that less than half of the group of patients with micro-albuminuria was on anti-hypertensive treatment, whereas current guidelines prompt the use of renin–angiotensin–aldosterone system (RAAS) blockade in all such patients: it is important to know whether the alleged anti-albuminuric effect occurred in addition to RAAS blockade.

Therefore, the current data—correctly denoted 'pilot-scale' by the authors—raise interest in a possible renoprotective effect of thiamine, but require support from further studies.

Duality of interest A. Alkhalaf, S. J. L. Bakker, G. J. Navis and H. J. G. Bilo are currently involved in an ongoing randomised, double-blind placebo-controlled trial examining the effects of benfotiamine. This trial is in part funded by an EU grant (PREDICTIONS project).

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